

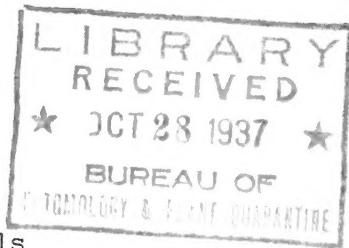
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October 1937

United States Department of Agriculture
Bureau of Entomology and Plant Quarantine

A MACHINE FOR THE EXAMINATION OF FLIES

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This machine was designed to facilitate the examination of large trap catches of blowflies for the presence and number of Cochliomyia americana, the primary screwworm fly. It is thought that the apparatus might be useful in other work that requires the examination, sorting, or counting of large quantities of insect material.

The machine consists essentially of an electrically driven conveyor belt on which the flies fall in an even distribution from a hopper. The rate of flow is regulated by a vibrating pulley under the hopper. In operating the machine the hopper can be regulated to accommodate the flow of either dry or moist flies.

The rollers, wheels, pulleys, and axles can probably be obtained at bicycle and typewriter shops.

Materials

1. An electric motor with rheostat, similar to sewing-machine motors.
2. Two typewriter rollers 1 inch in diameter and 9 inches long, with the hard composition material removed. Two steel rods about 1/4 inch in diameter to put through the rollers for axles.
3. One light wheel 16 inches in diameter or, preferably, larger, attached to the axle of one of the rollers. A tricycle or bicycle wheel will work.
4. Two wood pulleys $1\frac{1}{2}$ inches in diameter, with V-grooved face and a quarter-inch steel axle 8 inches long, for the shaking apparatus. One wheel under the metal shaker for vibration, to cause flies to slide onto the conveyor.
5. Two wood supports 1 by 3 by 6 inches to hold the axles of the shaking apparatus. These two supports are held together at the base by a piece of wood 1 by 3 by 5 inches and anchored at the belt pulley end with a screw, permitting adjustment of the vibration pulley regulating the flow of flies.

6. One piece, 12 by 20 inches, of IC gauge tin, 8-pound coating, for hopper.
7. Two wood supports 1 by 3 by 6 inches, with wing bolts, and extra 1-inch pieces for the hopper support and regulator.
8. One piece 1 by 2 by 12 inches as support at lower end of the hopper.
9. Four pieces of wood, preferably oak, 1 by 3 by 5 inches, for roller bearings, with holes cut out to accommodate axles of rollers.
10. Heavy brown wrapping paper for carrier belt, $8\frac{1}{2}$ inches wide, on which the flies fall.
11. A belt made from cotton wrapping string.
12. One board 1 by 12 by 50 inches on which to mount the apparatus.
13. A table not over 18 inches wide on which to put the machine.

Assembly of Apparatus

With the aid of the photograph (fig. 1) the parts can be easily assembled. Attach the four supports for the rollers on the 1 by 12 by 50 inch board, 22 inches apart lengthwise and 9 inches apart crosswise. Place the rollers in position and put on the paper belt conveyor.

Attach both upper and lower supports for the hopper. The upper support should be 16 inches from the roller. The vibrating apparatus is made by placing the wood pulleys 6 inches apart on the steel axle and mounting them on the wood supports, which are placed approximately 10 inches from the center of the large wheel.

The tin used for the hopper is bent to form an opening of about 4 inches at the bottom end. The hopper is placed on the supports and held loosely in place at the upper end by a pair of screws.

The rheostat can be operated by the foot or can be attached to the table and operated by the knee.

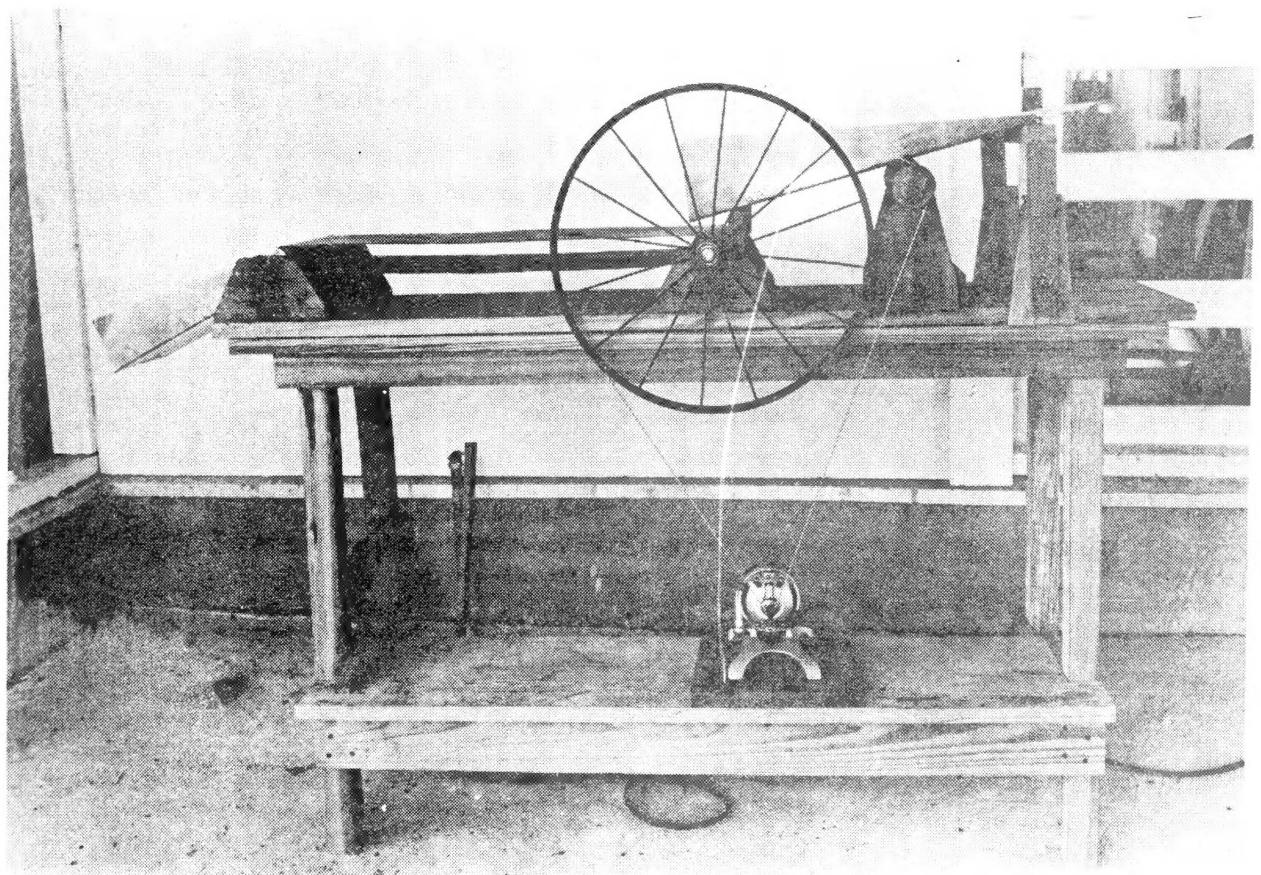


Figure 1.--The machine assembled and ready for operation.

